



Mark Scheme

AQA GCSE PE – Paper 1

This mark scheme contains:

- Copy of each question for reference
- Marking guidance where appropriate
- Marking points containing alternative acceptable responses plus relevant assessment objective

How should schools use this mark scheme?

The mark scheme has been constructed specifically for the exam paper used in preparation for and during the live revision shows provided by James Simms in May 2022.

All questions/mark schemes are taken from ExamSimulator. Please note, there are hundreds of additional questions on ExamSimulator covering the AEI topics. Within the platform, the teacher is assisted with the marking and full diagnostic feedback is also provided. ExamSimulator is a premium resource available via TheEverLearner.com.

I hope this helps both students and teachers in their exam preparations.

James Simms

1. Explain how the skeletal and muscular systems work together to cause movement.

Marking guidance

Not provided

Marking points

- (1) [AO 2] Muscles work in pairs/Antagonistic pairs/Antagonistic movement
- (2) [AO 2] Muscles attach to bones via tendons/Tendons connect muscles to bones/Tendons transmit force from muscles to the bones
- (3) [AO 2] Bones move when muscles contract/Muscles cause movement to occur/Movement of bones via muscular contraction
- (4) [AO 2] Long bones act as levers for muscles to use/Joints form a fulcrum for muscles to pull around/Bones act as levers

2. State **two** structural features of capillaries.

Marking guidance

Accept phonetic spellings.

Do not accept any functional characteristics as correct. For example, accept "one-cell thick" but do not accept "site of gaseous exchange." This question is stating **structural** characteristics.

Marking points

(1) [AO 1] Small vessels/Narrow/Very small lumen

(2) [AO 1] Single cell/One-cell thick/One cell

(3) [AO 1] Found in between arteries and veins/At the tissue/Connect arteries and veins

(4) [AO 1] Large surface area/Millions of individual capillaries/Capillary beds at tissues

3. State **two** functional features of capillaries.

Marking guidance

Accept phonetic spellings.

Do not accept any structural characteristics as correct. For example, accept "short diffusion path" but do not accept "one cell thick". This question is stating **functional** characteristics.

We chose to include "large surface area for diffusion" as a functional characteristic. Encourage students to write that large surface area means more diffusion occurs.

Marking points

- (1) [AO 1] Site of gaseous exchange/Gaseous exchange/Exchange of gases
- (2) [AO 1] Short diffusion pathway/Short path for gaseous exchange/Short pathway
- (3) [AO 1] Large surface area for diffusion/Large surface area/Millions of individual capillaries

4. Explain how **vasoconstriction** causes blood redistribution during exercise.

Marking guidance

Not provided

Marking points

(1) [AO 2] Lumen narrows/Decreased diameter of the lumen/Narrower lumen

(2) [AO 2] Decreased blood flow to the other organs/Decreased proportion of cardiac output to the other organs/Less blood is directed to the other organs

5.

Using your knowledge of mechanics of breathing, explain how air leaves the lung during **expiration** at rest.

Marking guidance

Accept phonetic spellings. Sub max of three marks for A01 and one mark for A02.

Marking points

(1) [AO 1] Diaphragm relaxes/Diaphragm is dome-shaped/Diaphragm moves up

(2) [AO 1] Intercostal muscles relax/Intercostals relax/Muscles between the ribs relax

(3) [AO 1] Rib cage moves down and in/Rib cage in/Rib cage down

(4) [AO 2] Decreased volume of the thoracic cavity/Decreased volume of the thorax/Chest cavity reduces

(5) [AO 2] Increased pressure in the thoracic cavity/Increased pressure in the thorax/Increased pressure in the lungs

6. Explain how **inhalation** changes during exercise .

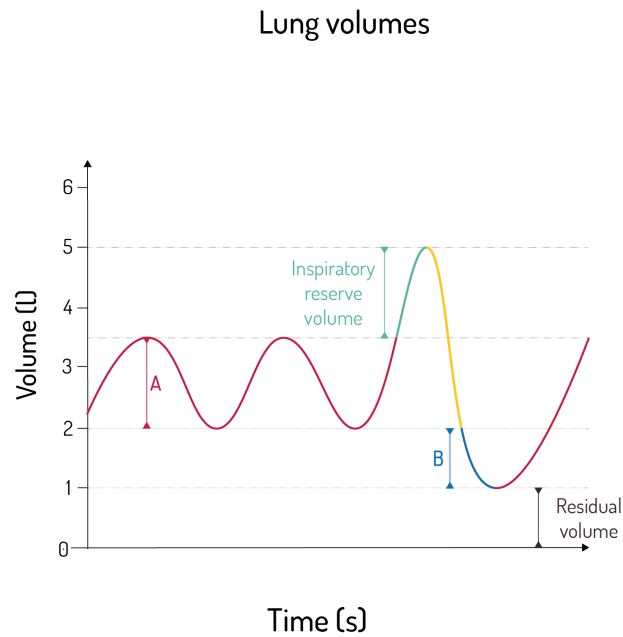
Marking guidance

Accept phonetic spellings. Sub max of one mark for depth or frequency of breathing. The skeletal muscles must be named for full marks. For example, "an increased breathing rate due to the contraction of the pectorals" would qualify for both marks. However, "an increased breathing rate and the chest cavity expands more" would qualify for one mark only.

Marking points

- (1) [AO 2] Chest cavity increases in size further/Increased depth of breathing/Thorax becomes even bigger
- (2) [AO 2] Increased breathing rate/Faster breathing/Breathing rate increases
- (3) [AO 2] Due to Pectorals and Sternocleidomastoid/Pectorals contract/Pectorals

7. The image shows a spirometer trace. Identify the lung volumes labelled **A** and **B**.



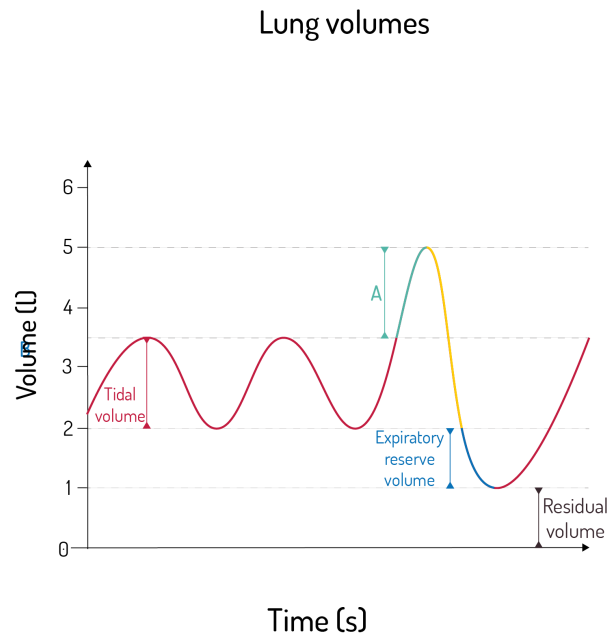
Marking guidance

Accept phonetic spellings of the lung volumes.
Only accept answers if they are linked to the correct label. For example, do not accept "A is expiratory reserve volume."

Marking points

- (1) [AO 1] A is tidal volume/A is TV/Tidal volume
- (2) [AO 1] B is expiratory reserve volume/B is ERV/Expiratory reserve volume

8. Explain the effect of exercise on lung volume **A**.



Marking guidance

The second marking point can be awarded if the learner does not accurately state how the inspiratory reserve volume will change as a result of exercise.

Marking points

(1) [AO 2] A is the inspiratory reserve volume and it will decrease/IRV will decrease/Decreased inspiratory reserve volume

(2) [AO 2] Due to increased demand for oxygen by the working muscles/Increased demand for oxygen/To increase the tidal volume

9. Using a sporting example, explain how **aerobic** respiration contributes to a performance.

Marking guidance

Examples need to be specific, with a clear link between the performance and aerobic exercise. For example, accept "the whole of the marathon" but do not accept "in the marathon" or training types such as continuous.

Give benefit of the doubt to answers such as "long-distance running" but guide students to specific sporting examples in your feedback.

Marking points

(1) [AO 2] Entire triathlon race/Entire 800m swimming race/90 minutes of a football match

(2) [AO 2] Because it is at low intensity/Because it is at moderate intensity/Not at high intensity

(3) [AO 2] Because it is long duration/Because it is sustained effort/Not short duration

10. Evaluate the role of anaerobic respiration in golf.



Marking guidance

Accept any suitable evaluation points relating to anaerobic respiration in golf. Evaluation is characterised by a **judgment**. Only accept examples from golf. Students should state why aspects of golf are or are not anaerobic. Only accept answers from golf that are specific to an action or a moment. Do not accept general reference to golf. For example, accept "a tee shot" but do not accept "when playing golf."

Marking points

- (1) [AO 3] Club swing is anaerobic because it is explosive/Club swing is high intensity/Club swing is powerful
- (2) [AO 3] Club swing is short duration/Club swing happens quickly/Club swings do not last long
- (3) [AO 3] However green shots are not powerful/Walking between shots is aerobic/Putting is not normally powerful

11. Identify **three** long-term effects of exercise on the cardiac system.

Marking guidance

Not provided

Marking points

(1) [AO 1] Increased size of the heart/Cardiac hypertrophy/Hypertrophy

(2) [AO 1] Lower resting heart rate/Bradycardia/Resting heart rate less than 60bpm

(3) [AO 1] Increased cardiovascular endurance/Improved CV endurance/CV endurance better

12. Name the group of muscles which stabilise the shoulder during movement.

Marking guidance

Accept phonetic spellings of "rotator cuff".

Do not accept "deltoid".

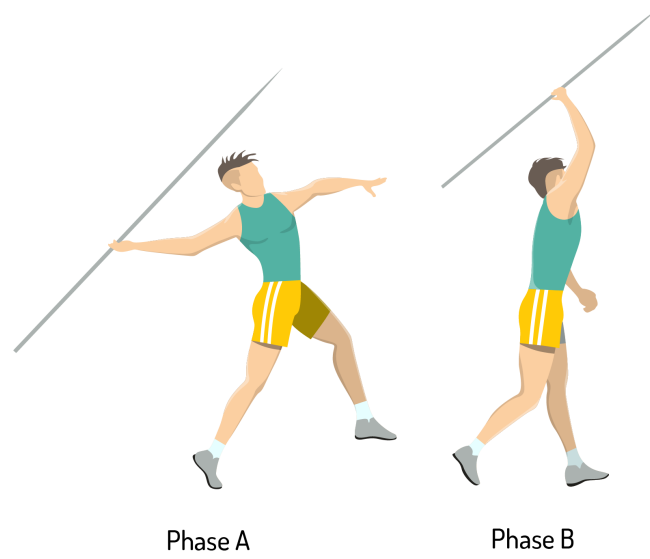
Accept individual muscle names of the rotator cuffs (teres minor, teres major, supraspinatus, infraspinatus). However, this knowledge is not required at this level.

Marking points

(1) [AO 1] The Rotator cuff group/Rotator cuffs/The rotator cuff

13.

Identify the type of movement at the **shoulder** of the throwing arm in phase B of the javelin throw.



Marking guidance

Accept phonetic spellings.
Mark the first answer only.

Marking points

(1) [AO 2] Flexion/Flexed/Flexing

14. Identify the type of movement at the **knee** of the **recovery leg** during running.



Marking guidance

Accept phonetic spellings.
Mark the first answer only.

Marking points

(1) [AO 2] Extension/Extended/Extending

15. Identify the **main agonist at the hip of the drive leg during running.**



Marking guidance

Accept phonetic spellings of "hip flexors".
Accept "iliopsoas", "illiacus" or "psoas".
Do not accept "flexors" on its own.

Marking points

(1) [AO 2] Hip flexors/Flexors of the hip

16. Explain how rock climbers use balance in their performances.



Marking guidance

Accept any suitable examples of balance in rock climbing.
Do not accept examples of other components of fitness in rock climbing.

Marking points

- (1) [AO 2] Climber keeps a wide base of support/Both feet on the rock to increase base of support/Greater horizontal distance between feet to increase base of support
- (2) [AO 2] Keep centre of mass close to the wall/Do not lean back/Keep the stomach and chest close to the wall and above base
- (3) [AO 2] Keep centre of mass above the base vertically/Do not lean to the side/Keep the body vertical above the base

17. Justify the importance of coordination in tennis.



Marking guidance

Three marks for three justifications of the importance of coordination in tennis.

Accept other suitable justifications.

Accept double negatives. For example, accept "with no coordination, the player will not be able to make contact with the ball in a tennis serve."

Marking points

(1) [AO 3] Linking the arms and legs together on the serve so that the racket makes contact with the ball/Arms and legs work together for a successful serve/Able to hit the ball in a serve as the arms and legs work together

(2) [AO 3] To be able to link the arms and legs together on a ground stroke to be able to return the ball over the net and score a point/Arms and legs work together to be able to return the ball/Able to hit the ball in a forehand as the arms and legs work together

(3) [AO 3] To be able to link the arms and legs to run to the ball and move the racket/Arms and legs work together return the ball/Able to hit the ball as the arms and legs work together

(4) [AO 3] To be able to link the arms and legs together on the volley or smash so that the racket makes contact with the ball and wins the point/Arms and legs work together for a successful smash or volley to win the point/Able to win a point in a volley or smash as the arms and legs work together

18. Evaluate the importance of speed **and** flexibility for a gymnast.



Marking guidance

[6 Mark Level Descriptors](#)

A02 is application to a gymnast. Students are expected to apply to a gymnast only. There is no A02 credit for other named sports. Answers must relate to a gymnast. For A03 credit other relevant evaluative points about the importance of speed and flexibility to a gymnast. Other fitness components can be incorporated into the answer if they are deemed as more important.

The marking points are indicative content. Please accept any suitable application and evaluation points and apply a **level** and a **mark** as per the level descriptions.

Marking points

(1) [AO 1] Speed is the maximum rate at which an individual is able to perform a movement or cover a distance in a period of time/Maximum rate at which an individual is able to perform a movement or cover a distance in a period of time/Putting the body parts into action as quickly as possible

(2) [AO 1] Flexibility is the range of movement at a joint/Range of movement possible at a joint/Range of movement at a joint

(3) [AO 2] Speed is required by a gymnast when running up to the vault to take off/Start of a tumble routine on the floor/Arm action when rotating around a high bar

(4) [AO 2] Gymnasts need flexibility to be able to do the splits/Straddle/Back bend

18. Evaluate the importance of speed **and** flexibility for a gymnast.

(5) [AO 3] Flexibility is vital for all gymnastic events as it can lead to more points being awarded/More flexible can often mean more points/More points can be awarded for more flexibility

(6) [AO 3] Flexibility in the hip joint is particularly important/Splits position/Straddle position

(7) [AO 3] Flexibility in the shoulder joint is particularly important/Full range of movement when holding apparatus/Rotating on apparatus

(8) [AO 3] Flexibility helps a gymnast execute techniques easier/Makes gymnastics more efficient/Makes gymnastics look aesthetically pleasing

(9) [AO 3] A flexible gymnast is less likely to be injured/Less likely to overstretch/More flexible means fewer injuries

(10) [AO 3] More flexibility is likely to lead to harder techniques being used/Higher tariffs for difficulty/Score more points

(11) [AO 3] More speed translates to more height on the vault/More rotations are achieved before landing/Greater horizontal distance travelled

(12) [AO 3] Speed is needed in a tumble to generate the momentum/More rotations in a tumble/More momentum carried into moves

(13) [AO 3] Flexibility is arguably more important than speed due to the aesthetic nature of the sport/Flexibility more important than speed/Flexibility more important

(14) [AO 3] However, speed will assist with the power required to jump high/Power causes better flight/More height

(15) [AO 3] Other fitness components are also important/Balance to hold a position for a period of time/Agility during a floor routine

19.

Fitness tests are used to find out strengths and weaknesses and to monitor improvements. Identify **three** other reasons for including fitness testing within a training programme.

Marking guidance

Not provided

Marking points

(1) [AO 1] Show a starting level of fitness before the training programme/Establish baseline data/Measure the starting level

(2) [AO 1] Inform training requirements/Give context to each training unit/Shows what needs to be done in training

(3) [AO 1] Compare against normative data/Compare to national average/Comparing against norms

(4) [AO 1] Motivate athletes/Set goals/Set SMART targets

(5) [AO 1] Provides variety to training programmes/Increased variance/More varied experience in the programme

20.

Many fitness tests are too general and do not replicate sporting movements. Identify **three** other limitations of fitness testing.

Marking guidance

Not provided

Marking points

(1) [AO 1] Many tests do not replicate competitive situations/Not the same as the competition/Different to the match conditions

(2) [AO 1] Many tests do not use a direct measure/Many tests are submaximal/Many tests predict rather than measure fitness

(3) [AO 1] Many tests require lots of motivation and this affects reliability/Motivation is needed to keep going/Not all participants are motivated

(4) [AO 1] Tests must be conducted with the correct protocols or they are not valid/Test protocols may not be used/Wrong protocols equals not valid results

21. Explain why a roller-hockey player would complete a cool-down after a match.

Marking guidance

Submax two marks for identify the benefits of a cool-down.

Marking points

- (1) [AO 1] The cool-down allows the body to recover/Body recovers faster/Faster recovery
- (2) [AO 2] This means the player will be able to compete again sooner/Can return to active training sooner/Fewer rest days before performing again
- (3) [AO 1] The cool-down causes the removal of lactic acid/Removal of carbon dioxide/Removal of waste products
- (4) [AO 2] Causes less pain in the legs and arms after the match/Less stiffness in the legs and arms/Less discomfort post-match
- (5) [AO 1] A cool down helps to prevent DOMS/Prevent DOMS/Reduce DOMS
- (6) [AO 2] This means the performer will not have stiff legs 24-48 hours after the match/Reduce soreness 24-48 hours after the match/The performer will not have sore legs and arms 24-48 hours after

Devine is a hockey goalkeeper and is playing a cup final in 60 minutes' time. Analyse the benefits of a well structured warm up to Devine's overall cup final performance.



Marking guidance

Level descriptors.

A02 guidance: The application needs to use examples from a goalkeeper in hockey.

A03 guidance: Analysis must link to the benefits of a warm up to the performance of a goalkeeper in hockey. This is the opportunity for the learners to use a breadth of knowledge and analyse other topic areas. These are referred to as synoptic links and need to be coherent and relevant for a warm up for a goalkeeper in hockey 60 minutes before a game.

The marking points are indicative content. Please accept any suitable application and analysis points and apply a **level** and a **mark** as per the level descriptions.

Marking points

- (1) [AO 1] Warm up has four components/Four components
- (2) [AO 1] Gentle pulse raising activity/Pulse raising
- (3) [AO 2] Devine jogs around the D/Completes laps/Sidesteps across the D
- (4) [AO 3] Pulse raiser increases oxygen delivery to the muscles to be able to last the 70 minutes
- (5) [AO 3] Pulse raiser increases muscle temperature which decreases the likelihood of soft tissue injuries
- (6) [AO 3] Pulse raiser increases muscle temperature making muscles more pliable which allows for correct technique
- (7) [AO 1] Stretching/Mobility
- (8) [AO 3] Increased range of movement at the shoulder in order to reach further and save shots in the corners
- (9) [AO 3] Increased range of movement can prevent joint dislocation
- (10) [AO 2] Static stretches such as a gastrocnemius stretch/Lower back stretch/Shoulder stretch
- (11) [AO 2] Dynamic stretches such as lunges/Squats/Shoulder circles
- (12) [AO 2] Devine practises shot stopping
- (13) [AO 1] Skill-based practice/Skill familiarisation/Skill drills
- (14) [AO 3] Increased range of movement at the hips in order to perform splits to save in low corners/To kick the ball clear
- (15) [AO 1] Mental preparation

22.

Devine is a hockey goalkeeper and is playing a cup final in 60 minutes' time. Analyse the benefits of a well structured warm up to Devine's overall cup final performance.

- (16) [AO 3] Developed synoptic link 2/An example could be basic information processing during the skill familiarisation
- (17) [AO 3] Devine is psychologically prepared for the game and more likely to make good decisions
- (18) [AO 2] Devine practises kicking the ball clear of the D
- (19) [AO 3] Devine gradually increases effort to game pace which replicates game scenarios
- (20) [AO 2] Devine applies deep breathing techniques
- (21) [AO 3] Increased coordination of antagonistic pairs by practising essential skills
- (22) [AO 2] Devine practises rushing out to defend a through ball
- (23) [AO 3] Developed synoptic link 5/An example could be connective tissue such as ligaments and tendons becoming more pliable
- (24) [AO 2] Devine performs mental rehearsal during time alone in the warm up
- (25) [AO 3] Developed synoptic link 4/An example could be maintaining hydration throughout the warm up by drinking water
- (26) [AO 3] Developed synoptic link 3/An example could be Devine consuming simple carbohydrates during the warm up for quick release of energy
- (27) [AO 3] Developed synoptic link 1/An example could be optimal arousal levels and inverted U
- (28) [AO 3] Devine practises the essential skills through the full range of movement